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THE PRESENT TENDENCY OF INVESTIGATION IN MEDICINE.

AN

ADDRESS

DELIVERED BEFORE THE

SUFFOLK DISTRICT MEDICAL SOCIETY

At its Second Anniversary Meeting,

BOSTON, MARCH 28, 1851.

BY

SAMUEL PARKMAN, M. D., M. M. S. S.

ONE OF THE SURGEONS OF THE MASS. GEN. HOSPITAL.

Published by Request of the Society.

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ADDRESS.

*Mr. President and Gentlemen of the
Suffolk District Medical Society.*

IN compliance with the request which your Committee has done me the honor to make, I appear before you this evening, to occupy your attention for an hour, with the address which our rules direct should be annually delivered by one of our members. In the choice of a subject, I have been guided by the knowledge that I was about to speak to a collection of practical medical men, feeling the importance of the profession to which they have dedicated their lives, and a consequent interest in the progress of the science upon which it is dependent.

In addressing such a body of gentlemen, I have thought that it would not be out of place to vindicate before them their claims to be considered as the professors of a real science, to show to them the path which must be followed to advance this science, and to comment in some few words upon the tendency of investigation at the present time, the results of which must necessarily have more or less bearing upon the practice of the art.

The question is sometimes asked, Is there a medical science, or a science of the practice of medicine? It will be the aim of a portion of this discourse to answer this question, and to endeavor to place medicine in its real position with regard to the other sciences. In doing this, it will not be without interest to examine the requisites for the formation of a science, or the possibility of discovering the laws regulating any particular set of phenomena.

It will be granted by every one, that the phenomena of the external world do not follow and succeed each other by a blind chance, but are subject to positive and controlling laws. These governing laws may be now incomprehensible, and perhaps in some cases will never be comprehended by our natures; but the existence of the law binding together the phenomena by a chain, to which we have given the name of cause and effect, is universally allowed. If we had not the certainty that like causes will always produce like effects if no counter-acting cause be present, we should be involved in a constant maze of doubt and obscurity. Experience, observation, induction, reasoning, would be of no avail, and each day would be the commencement of a new existence. The reality of this invisible chain being recognized, science has for its object its discovery—and examining the sets of phenomena already grouped by nature, it endeavors to discover the laws of their succession, to point out amidst the innumerable variety the one that is essential, to

classify those that resemble each other ; that it may be able definitely to predict future occurrences and their conditions.

Now of some of these groups of phenomena the laws are easily discovered ; we know clearly the relation which each bears to the other ; the effects are all referred to their causes, and all the causes are known. Such a knowledge is called a complete or exact science. These sciences thus completed are few, and of them astronomy may be considered the type. The opposite of this may be taken, by way of example, as the science of the weather. No one doubts that rain and sunshine succeed each other by distinct laws ; that the storm of to-day is the result of all the meteorological changes since the world began ; and that it, in its turn, must have its own influence upon all relative phenomena until time shall be no more ; and yet we have not advanced beyond the rudest laws. But between these two extremes, there exists a great number of subjects for science, the laws of which we are enabled partially to explain. In many, our knowledge is sufficient for much practical usefulness, and of it we daily avail ourselves, it being always understood that we are liable to be deceived in our expectations by the occurrence of unforeseen events. Thus we know most of the laws regulating the ebb and flow of the tides, and we can predict their condition at any place and time with a proximate degree of certainty. Our calculations will differ somewhat from actual occur-

ces, but for these differences we know some undiscoverable cause must exist, and we hope by observation that their existence may be proved, and their importance weighed.

Medicine must be ranked among these inexact or imperfect sciences; but that it is so, should not be considered as a reproach, or as any indication of want of skill or attainment on the part of its cultivators. Those sciences only are complete and perfect which have occupied themselves with the phenomena of certain forms of brute matter, where the conditions are few and simple; and the degree of exactness which has been attained, is in proportion to the simplicity of the influences interfering with the chief causes of the effects we may be examining. Medicine occupies itself with the highest type of Nature's creation; it studies man, the chief of the universe, and is kindred with those studies of mental and moral philosophy which have occupied the world since history began. The knowledge of man, mentally, morally, or physically, can never be perfect, for we are ignorant of the very nature of the object we are studying. We may hope to acquire a knowledge of mere brute matter, for we may have it before us, we may confine it and pursue it to its ultimate elements; but who shall tell us of the subtle essence which marks the difference between the moving, thinking, feeling portion of matter which constitutes our individuality, and the collection of muscles, bones and sinews, ready to be dissolved into their

component physical elements, when what we call Life has fled? Who shall tell us what this Life is? And yet, without this knowledge, how shall we study its manifestations? The astronomer employs the term gravity as explanatory of the cause of an effect, which he observes to be always produced by the action of bodies upon each other. This reciprocal action is subject to but few laws, and these easily comprehended and expressed, and the term is used as an exponent of an effect always produced. And his science has become exact from the very simplicity of these laws. But what gravity is to the bodies composing the solar system—their guiding and controlling principle—that is life to the bodies we study. On the one hand, the conditions are few, simple, and easily appreciable; on the other, how complicated and abstruse. If we could define and explain the principle which erects inanimate matter into breathing, sentient existence, then would the corner stone be laid, and the edifice would rise at once. But this so necessary knowledge must always remain veiled to us as mortals. And this is no subject for complaint, since it may be an occupation in another existence, possessed of this key, to solve the many inscrutable and unfathomable problems which have baffled us here. And as Socrates hoped to meet, beyond the Styx, the Homeric heroes, and “pursue with them the debates on ethical progress and perfection,” it may be the happiness of the medical philosopher to question the sages who have

preceded him, and to be finally enlightened by their purified wisdom; and the exercise of his faculties in this existence may be only the preparation of the ground in which the tree of knowledge shall blossom hereafter.

The science of medicine, then, is incomplete, imperfect, inexact, only as is every science which has relations with living beings. The metaphysician speculates upon the laws which govern the manifestations of mind, and labors to accumulate as many conditions as he can comprehend, using the study however only as a species of mental gymnastics to fit him for the understanding of himself. The science of the moralist is alike inexact or incomplete; but it is considered no reproach to its votary, that, with his present faculties, he may never hope to attain what he constantly strives to reach. We do not abandon his precepts because there are occasional conflicts and doubts as regards duty, which are honestly settled in opposite ways by different persons. Because there is a supposed conflict between the "higher" and the "lower" law, we do not abandon all law. Thus medicine is imperfect; the laws of disease can never be fully known, because of our ignorance of the laws of health. But still we may bring together many important phenomena, and their study may enable us to prescribe rules, which, although imperfect, may be sufficient for our guidance, with the recognition always of the uncertain ground upon which we stand.

Medicine has been reproached because, in the presence of that scourge, the cholera, which has, with mysterious and deadly step, passed over nearly the whole world, it has remained inefficient and powerless as regards the discovery of its real cause and nature; not even having pointed out a sign by which its approach might be foreseen, even if it were ordained that we must succumb to its devastation, as to a decree of fate. The charge is true; but let only those who are free in this respect, cast the reproach. Has any naturalist ever approximated to the cause or nature of the disease, which in like manner has spread over a large portion of the world, depriving a nation of its subsistence? And yet, which of the two has the most advantages and facilities for arrival at discovery, the one compelled to judge of the hidden processes of disease by obscure signs, or only able to examine its effects after its ravages have been completed; or the other, who has merely to walk into a potato field and make living autopsies of his diseased patients? A mysterious influence has traversed the land, and a class of forest trees, which had for years with each returning spring spread their leaves for grateful shade, now raise their bare branches—a deformity and a barrenness in the midst of the beauty and plenteousness of summer. Has any one shown the causes of this? Has any one advanced even a tenable theory, or made so much as a probable supposition?

The term science is frequently coupled with a

sneer, or with some word of reproach or slight, as if it were opposed to the practical treatment of a subject. The practical man says he has no time for scientific speculations, and takes credit to himself as being occupied with something tangible and real, while the other is wandering in the mazes and doubts of hypothesis and vain theory. In reality, however, science is eminently practical—without it we must be reduced to the vainest empiricism. There is an imagined opposition between science and art—an opposition falsely charged by those claiming to be the sole promoters of the practical and useful. The two are co-laborers in the same great field. Art surveys the ground, takes cognizance of the labor to be undertaken, and the ends to be accomplished, and then asks of its co-adjutor, science, the means by which these purposes are to be effected. No rule of art can be made without the aid of science. All knowledge must be first tested by this standard, and its purity ascertained, before it can pass current for any value. Science may employ itself in the study of subjects, the practical importance of which may not readily be perceived, and which possibly may not exist; but if art is desirous of effecting any thing useful and permanent, of acting clear-sightedly and distinctly, it must follow the laws which science prescribes, and must be willing to acknowledge the assistance received.

It may, however, well happen, that before science can have fully mastered a subject, it may be neces-

sary that art should act. It is true that we cannot stand hesitating upon the bank, because we have no certainty whether the stream be fordable or no. Something must be done, and we must cross as best we may. But because we cannot be certain of the means, let us not foolishly deny the desirability of this certainty, or, scoffing at those who labor to develop it, be content with the hap-hazard results of empiricism, although occasionally brilliant and decisive.

Now science does not consist, in medicine, any more than when it occupies itself with other subjects, in the simple accumulation of facts, in the recording of numbers, or in the adding of columns of figures. Simple experience is not sufficient to establish a law, or to render certain that events which have always happened together, or succeeded one the other, should continue to be so connected for time hereafter. Experience may on the whole be the safest guide for practice in any particular instance, but it cannot when alone offer certainty to science. The reason of the connection of the events must be discovered before we can have the certainty which science demands. To state an extreme case, experience has informed the world that the sun has risen daily since order came out of chaos; and if any observations had been made for a series of years on the variations of its times of rising and setting, it would undoubtedly have been noted that these variations had followed a certain regular order: but

this knowledge would have had only reference to past events—there would have been no certainty that the sun will rise to-morrow at about the same time it did this morning. The prediction of the future cannot be made from the past, on the ground of mere experience. Experience is merely the record of facts that have taken place; and it is only when we have discovered the chain of their connection, that we can predict the future. Science knows the sun will rise to-morrow at a moment that it can predict, because it has discovered the laws by which the solar bodies are moved in their orbits, and it knows that, as long as the solar system lasts, the sun must rise at given hours; that any aberration is impossible; and, with this knowledge, to-morrow's sunrise might be predicted, if science were deprived of the fact that the present darkness had been spread over our portion of the earth within only a few hours.

Science, then, is the discovery of the law of succession—of the law of cause and effect. It gives an answer to the question, Why? It is the employment of the mind upon the phenomena presented to the senses. Its results are the distinction between man and the brute, and are the highest objects upon which the intellect can be employed. And medicine, that it may approximate towards a rank as a science, must apply itself in this direction, and, availing itself always of recorded phenomena as facts, must endeavor to discover the causes of these, and their reciprocal action one upon another.

If the study of medicine were confined merely to the record of events that have taken place, and to their announcement, that we might argue from the past to the future; the only advance that could be anticipated would be in the perfection of the methods by which these observations are to be made—that we may not be deceived by any false appearances. If restricted within these bounds, medicine would be only an art, limiting itself to simple observation of events which it neither attempted to explain or comprehend. Experience is absolutely necessary, for by it facts are collected that science may judge of them. The doubt, that may fairly arise, however, in any case, will be whether experience has collected sufficient facts to permit the advance to be made. To take this step is what the scientific observer in medicine, at the present time, proposes to himself. Assuming that we are at this point, I shall endeavor to point out some of the means by which the proposed end is to be attained.

Now, as medicine occupies itself with the study of this complex organization, the human body, wherein are united two sets of forces, those belonging to matter as matter, and those with which it becomes endowed when vitality is imparted to it, it would seem that there are two methods of investigation by which the ends of science are to be obtained. Physiology may be defined as the study of the processes by which the human body assimilates matter of the external world, applies it to its own uses of

relation with that world, and finally returns it, in another form, whence it was originally received. Medicine is the science by which we propose to act upon this human body, when its functions are deranged, as happens, in the large majority of cases, by agents external to it, in order that it may resume the performance of its usual actions. Now it is clear, that both in physiology and medicine, the effects of external agents, from their first connection with the human body, are subjects of examination in a double point of view—first, the effect which they naturally have upon the body in virtue of their properties, composed of elements having affinities chemical and other with the corporeal elements,—a view which regards the human body and the agents connected with it only as so much inert matter, and proposes its examination as such; and, secondly, a point of view from which only the essentially vital actions are considered, and which ignores or takes comparatively little account of the mere material actions of these elements after they have entered the human body; a view, which regarding solely this inscrutable, invisible, perhaps incomprehensible principle, styled life, desires to account for all phenomena of organization by its agency—considering all these phenomena as distinct from those presented elsewhere.

Now, as the nature of this principle is confessedly difficult, to say the least, of comprehension; and as, living bodies forming part of the material universe,

our first investigation would be whether the laws of matter hold good as regards them, it would seem the natural process to endeavor to reduce these vital phenomena as much as possible under laws which we already understand, and to seek in a known direction their explanation. It is evident that if the functions of the human body were performed upon an entirely distinct and peculiar set of principles, there could be no assimilation between the two forms of matter, the animate and the inanimate—no reciprocal action of the one upon the other. The ingested food is composed of certain chemical constituents, which must retain their chemical relations equally within as without the body. If principles that should be ejected are retained, there is nearly a certainty that they too must act in the same manner in their new and false situation as if they were restored to the world at large. There is reason, for example, to believe, that the poisonous effects of arsenic are in some measure dependent upon its antiseptic properties—upon its power of arresting the disintegration of the component elements of tissue, and thus retaining within the economy principles which should be discharged as effete. And it may be that all poisons, animal, vegetable and mineral, act in like manner by their chemical effects. When, therefore, we have mastered all these and similar phenomena, and have studied all the reciprocal actions in the human frame, then we shall be entitled to leave the residue to be accounted for by this

unknown principle, the vital force or power, but it is only legitimate to employ this when every other explanation has failed. It should, as the god in the ancient tragedy, not be admitted unless the crisis were worthy of such interference.

It would seem, then, that in this direction the studies of medical science should be applied, viz. to the investigation of the changes which matter undergoes after its arrival at the human organization, and the investigation of these changes according to laws which we know to be established for the same matter elsewhere ; endeavoring, as much as possible, to explain the phenomena by these, and searching always first in this quarter for light to illumine a darkened path. By directing study to these points will the next great discoveries probably be made, and any great all-embracing laws be established.

The ideal condition which medical science holds before itself is a condition of knowledge, when, in every disease, we shall know the manner in which the system departs from its normal condition, either by the reception of morbid influences from without, by the mal-appropriation of substances received, or by the failure to eliminate injurious principles which are the result either of the normal or abnormal decomposition of the tissues, or of substances foreign to the system received in divers manners. This ideal condition is of course beyond our reach, because its attainment requires the knowledge of more facts than humanity may hope to analyze and compre-

hend ; but it is only by fixing her eye upon this ideal and keeping it steadily in view, that medical science can hope to master any of the problems submitted to her scrutiny.

I have said that by this method the great discoveries remain to be made—discoveries which are to advance more especially our means of prognosis and treatment of disease. In diagnosis, as far as it bears upon these two last mentioned points, it may be said, with truth, that we have not a great deal to be attained, especially in acute diseases. The great discovery of this century, that of Laennec—has given us almost a certainty of diagnosis in a very large class of diseases. And it cannot be denied that within our time an advance in the facility of diagnosis in all diseases has been made, greater than during any period of many times its length in the previous history of medicine. We have in but few cases doubts as regards the malady we have under our hands. What we desire to know, and what we must know, to enable us to prevent it, or to remedy it, is the cause of its presence, the nature of the morbid influence, its action upon the economy, and the reaction of the economy upon it. We ought to know the nature of the cause of the disease, and the manner in which all the actions of the economy are influenced by it.

Without knowledge of this kind, it is evident that the prognosis in any case, as far as that case is concerned, is either a mere statement of chances founded

upon the observed results in a given number of similar cases, leaving it of course perfectly uncertain whether the one in hand will finally be numbered among the majority or minority, or it is the result of some peculiar tact or gift of the practitioner, who is enabled to make a guess, by means he can neither impart nor explain. Now, in the first of these cases the prognosis is valueless, or nearly so, as regards certainty in the individual case; and in the second, it may be said, that differences resulting from the possession of the *tactus eruditus*, from peculiarities of organization, as shown in fineness and nicety of perception, the employment of instruments necessary for investigation, and the manipulations peculiar to the practice of any art, must necessarily exist among its practitioners; but, the conditions being established and agreed upon, the enunciation of the consequences should be clear to all who can apply the rules of the science; they should, in an exact science, follow like the working of a mathematical equation. Or, in other words, the diagnosis may fairly be supposed to be more or less easily and clearly made out, according to the skill and training of the individual practitioner; but this being done, the ideal condition would be that the prognosis should follow as a matter of course. The same, or similar remarks, may be made with regard to what we should propose for ourselves in the search for means or rules in the treatment of disease.

It is plain that the practice of medicine, if it would free itself from the charge of empiricism, must give a distinct and clear account of the reason for the action of its drugs. Now, although an equal improvement has been made in methods of treatment to that in diagnosis, still it cannot be denied that this has consisted rather in the abandonment of old practices than in the substitution of new. We do not bleed as much, we do not purge as much, as did our fathers; but as yet we have substituted nothing in their places. The remedies which are efficient in chronic diseases have been discovered more by a species of accident, the steps leading to their introduction being for the most part unknown, and a reason can be given for the action of but very few.

It should not, however, be regarded as any stigma upon its practitioners that so large a portion of the improvement in the practice of medicine should consist thus solely in the abandonment of methods which have been found inefficient. A parallel may be found in an example drawn from political history, the history of the treatment of the body politic. Within the last thirty years, in Great Britain, measures have been passed of greater significance, and destined to have a greater influence upon her people, than those of perhaps any other thirty years of her history; and yet, as has been pointed out by a late writer, each one of these has only been a measure of relinquishment, an abrogation of an act, rather than the substitution of any new form of action, and

one of her greatest statesmen of this period rests his strongest claim to sagacity on the fact that he discovered and was ready to acknowledge the errors of a previous political career.

Now, inasmuch as it is to a fluid state that all ingesta must be reduced, before they can be fitted for assimilation, and as it is by the one great fluid, the blood, that all the elements of tissue are carried to the parts of the body, and as it is to this same fluid form that the greater portion of the excreta are reduced, it certainly is by turning attention to the study of the fluids of the system, and their changes in disease, that we may hope the next great discoveries to be made. By the fluids, all principles, whether deleterious or otherwise, must enter into and be carried to the various points of the economy; by the fluids, all effete and hurtful principles must be eliminated; and it is fair to suppose, that the action of remedies, as they are alterative of diseased action, or eliminatory of morbid principles, should be traced in changes which these fluids undergo under their influence.

Furthermore, if what has been advanced be true, that we should endeavor, as far as possible, to reduce organic changes to the laws which influence unorganized matter, it would seem clear that we must attend especially to this part of the economy, since it is the only part which during life can be subjected to our investigations. We are, by the circumstances of the case, in a great degree debarred from the

study of the systemic relations with external matter, except while it is receiving and parting with this matter. We can know what enters and what leaves the machine, and from these data we must form a proximate idea of what the actions of the economy are, since these last must in a great measure be hidden from our necessarily imperfect researches.

Investigation of this nature is still quite in its infancy, and what has been made offers as yet but few results bearing directly upon practice, and it certainly would be premature to claim any great advance or even any decided approximation to have been made towards the desired result. It is mainly the present object to point out the desirableness of this result, and to show that this is a chief end for which medical science should strive, and to indicate the direction in which research will probably meet with the most success and reward. It is fair to presume, that, in any case, it being demonstrated that a machine must work by certain laws, it will only be in the study of those laws, as applied to the parts, and in the study of the individual parts of the machine themselves, that an accurate knowledge of the structure, sufficient to enable the repair of injury, can be obtained. And this must hold good as regards the human frame and its injuries and maladies.

Medicine, hitherto, and this is said without disparagement, has been occupied mainly in observation upon a gross scale, in the collection of facts relative to diseased conditions, and in discovering the means

by which these conditions may be recognized. It has been employed mainly in the observation of the results of disease when fully formed, studying its products, classifying its various genera and species, constructing a natural history as it were; forming for itself a vast museum, which, although it may point out the ravages which have been made, throws little light upon the means by which the evil has been done. It has been employed in surveying the sphere of observations, and learning what was actually necessary to be effected. This labor has been necessary, and all honor to those who have patiently toiled to build the tower which is now before us, accumulating by slow degrees the material, and endeavoring to test, by the crushing process of investigation, the individual blocks offered often by minds as ready to impose upon themselves as upon others. It was necessary that the ground should be painfully and laboriously surveyed; the rough places, if possible, made smooth, and the hills, perhaps, a little lowered. It was necessary that the whole army of laborers, from Hippocrates to Louis, should have toiled to fill the vast abyss of ignorance, each bringing the quantity of fact that he could accumulate. Thanks to them that this work has been done. By their toil, the ground beneath our feet has become in a measure hard and firm, and it behoves us, if we would show ourselves the worthy sons of such sires, to step boldly upon the causeway which they have made; and, unterrified by the seas of doubt, which

still dash their waves up its slippery sides, half blinding us with the spray, to push for the other shore, where is offered, as a prize, a solution, partial though it be, of the enigma which has been propounded to man, since the world began, the knowledge of himself.

I have said that, apparently, we have arrived at a period in medical science when it seems probable that investigation is about to take a new direction ; to turn from the previous simple watching of the effects and proofs of disease, and apply itself to a more complete analysis of the nature and causes of these effects. The investigation is about to become more minute and searching, directing itself to the primary and more simple actions of the economy, and laying the foundation of the knowledge of the larger and more marked manifestations of disease in the understanding of the less complicated operations. The results of such investigations may be only looked for with the eye of a hopeful imagination ; but it is something, if sensible of our wants, we are encouraged to strive for their satisfaction.

Patient investigation, and long continued observation, have taught us that there are a certain class of diseases, over which, when once they have laid hold of the body, we have little, if any, control. Such diseases are typhus, typhoid fever, the eruptive fevers, &c., to which we have given the name of self-limited diseases, and which would seem all to agree in this point that they in fact are the endeavors

of the system to free itself from some poison which it has received from without; which attempts we have learnt are not to be counteracted; our attention being required only to give assistance if these endeavors fail, or to meet any accident that may arise. Now is it too dream-like to look forward to the time when something may be known of the nature of these poisons, or at least their antidotes be discovered? For the prevalence of smallpox, it is necessary that we should have the presence of the poison and of individuals with constitutions liable to receive the disease. One of the circumstances necessary for the propagation of the disease is removed, when, by vaccination, we destroy the susceptibility of the individual by the modification of his system. For the spread of British typhus, we must have a community composed of individuals susceptible to the disease, as all probably are; and the poison, dependent, as it would seem, in a great measure, upon bad hygienic conditions. We destroy these conditions, and we stop or retard the spread of the disease. In the one case we act upon the individual liable to receive the poison; in the other we counteract, and in part destroy the poison itself.

Now, perhaps some great discovery of this kind, with relation, for instance, to scarlet fever, may yet reward patient research,—some modifier of the system, destroying its liability to infection, or substituting a milder and less virulent form. Such a discovery, it is true, can hardly be expected to be made

by any investigation directed for the purpose, as it would be impossible to know with what class of agents to experiment. If it be made, it will be the result, as was vaccination, of the fortunate chance that the fact of the immunity of the milkmaid was brought under the observation of an observer like Jenner. But the fact that such a discovery has already been made as regards one of this class of diseases, should excite suspicion that a similar law may obtain with the others; and keep us on the alert, lest like those before Jenner, we neglect opportunities, which are seeds dropped casually by the sower, for the reception of which we are bound to keep our ground fertilized, so that if we are the fortunate recipients, they may not wither for lack of nourishment.

But although for new facts like these we have no means of knowing beforehand the direction in which we should look, and though their discovery must in a great measure, as far as scientific research can be applied, be the result of a species of chance, and although when discovered we may know nothing beyond the bare fact, the laws of causation being entirely concealed, we are not in all instances compelled to a like inactivity. We are not compelled to sit beside the stream, to collect with uncertain grasp and rude nets the rich debris which are washed by chance and irregular torrents from the unknown mountains of knowledge and truth. We may often explore for ourselves to the source, or by

well contrived canals and scientifically constructed works so guide the stream, that it may deposit its golden treasure where we shall be free to use and apply it as our wants may indicate.

The change now taking place in the direction of the studies of the medical observer, consists especially, as I have pointed out, in the more exact examination of the minuter actions of the economy both in health and disease. This more minute examination consists in the study of the physical and chemical changes which are wrought in the components of the fluids, and through them in the solids of the body in its various conditions. And surely, from the new light that has been thrown, upon the pathology of the blood for instance, and its changes in different diseases, we may anticipate the arrival at some discoveries in treatment—discoveries, it may be, as yet far distant, but upon the track and scent of which we feel ourselves well set. Hunter, with that power of anticipating truth which would seem the attribute of genius, and which, gifting its possessors with something almost like inspiration, enables them to scorn the slow process through which the common herd of observers must struggle, boldly claimed organization for the blood. What he foresaw and announced, is now proved and acknowledged; and as a consequence, already diseases are beginning to be classified as this fluid is influenced by them. If the results of modern research be true, and it would appear that certain points are

well established, we are authorized in regarding the whole class of inflammatory diseases as presenting this single circumstance in common, that the blood becomes overloaded with fibrin; and moreover there is some ground for belief that this fibrin is derived from the tissues of the body, is in fact effete matter, and must be discharged by the emunctory fluids; or in other words, inflammatory fever represents a condition of the system in which there is a more active consumption of the body than in health, and when consequently the fluids of the system are surcharged with the products of this consumption. One indication clearly pointed out by these discoveries, would then appear to be the re-dissolving of this fibrin, by which it might be enabled to pass the more readily from the secreting organs of the system. This may not be all that is necessary, and the various local causes of the inflammatory fever may each require peculiar treatment; but here is one great circumstance belonging to all, furnishing grounds for at least one portion of the medication which may be common to all.

A *theory* in medicine is looked upon with an eye of distrust, the bad name which it has earned by centuries of misapplication has continued with it to the present day, and has deterred the minds of pathologists from any attempt to employ it in its real and just sense. But, in truth, a theory is the mere assembling of facts that have been observed, the statement of the laws governing those facts, the

attempt, by pointing out the resemblances between various phenomena, to reduce them under general laws, and the expression by a formula of a demonstration satisfactorily proved, but with the individual steps of which we agree not to burden our memories, knowing that they are safely recorded for use when needed. The formation of a well grounded theory in medicine is of very considerable assistance if not of vital importance to its progress. It gives force and direction to research. By it we are enabled, in a measure, to control the circumstances we wish to examine, and to raise ourselves, in some degree, above mere passive observers. A theory, even though it may be obliged to depend upon hypothesis for some of its supports, may be an aid in progress and assist in the ultimate arrival at truth. The bold theorizer, although often mistaken, will probably accomplish more results than the one who contents himself only with pointing out defects, declining any of the good, because it is mixed with evil. The office of the theorizer in medicine may be not inaptly compared to that of a class, numerous at the present day, who occupy themselves with the various questions of reform in morals. Their persevering insistence upon one idea renders them very disagreeable, and sometimes even may excite the wish that we had lived in the times of a blissful ignorance of so much moral duty; but candor compels us to allow, that mainly, by such persevering action, are the great results obtained.

That a great movement may be made, it is necessary not to keep the eye fixed solely upon the ground, lest perchance we may stumble, but we should endeavor to give heart and strength to the limbs, by a hopeful contemplation of the end of the journey, distant though it be, and then we shall the more readily recover from a misstep. The vice of the old theorists was, that they first formed the theory, and then either endeavored to find facts to support it, or proceeded upon the supposition that they were already found. Modern medicine first observes, and on the basis of its observations builds its theories. Modern medicine attempts, from its observation of the minute operations of disease, to discover the active principle, the essence of the disease, in the hope that the simplicity of this may be some guide to the discovery of the points of resemblance in forms now appearing almost too complicated for analysis and reduction to simple laws. And surely we should apply remedies with more certainty, with more accuracy, if we could arrive at what really is proposed when an attempt is made to establish a theory; which, in good truth, is simply a statement of what is actually the condition of the body under the influence of the disease.

The humoral pathology, with its peccant humors and critical evacuations, was dominant in medicine for a series of years; built upon no facts, or upon those which it misapplied, it crumbled before a solidism, which, while it had the advantage that it

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was able to claim a foundation upon appearances, which could be made evident to the senses, forgot that these appearances were only the signs of the ravages of the disease, and threw no light upon the cause by which they were effected. It was necessary that medicine should pass through this condition, since by this, one portion of the subject was thoroughly understood, but by this means little light was thrown upon the treatment of disease, except in as far as it pointed out that certain methods of practice were contra-indicated and to be abstained from; that with certain morbid conditions of internal organs certain drugs were incompatible—but it furnished few, if any, positive indications. One of the constant accompaniments of typhoid fever was shown to be ulceration of the intestines; and this led to a distrust in antimony as a remedial agent, but no substitute more efficacious was pointed out. It would appear the tendency of modern medicine, that it seeks to go behind these gross products or effects of disease; and in so doing, adopts its own theory of a humoral pathology and critical evacuations. It assumes, for example, that there is ground for belief that a theory for an explanation of many diseases may be found in the idea, that the *materies morbi* is something entering the circulation, and continuing, either as an active agent by itself, or so modifying the other principles which it meets, that the visible phenomena styled the disease are produced, which phenomena are the workings of the system

for the discharge of this product or its results, by some of the natural outlets. The theory of the action of the morbid principle may be found in the effects of an alterative drug, administered in excess, in which case we observe certain febrile symptoms, certain uneasinesses, complaints in different organs, and indefinable signs of mal-performance of function, until suddenly the fluid evacuations become loaded with the offending substance and order is restored.

Now, modern medicine would appear to tend towards the belief, that disease in many instances acts in this manner and by similar laws. That the phenomena of gout and its preceding conditions, showing clearly that the relief to the system comes after the deposition from the blood of the lithate of soda in the different situations where the gouty swelling takes place, or by the great emunctory the urine, are only indicative of what occurs in many other diseases; as for instance in rheumatism, although in this case the actual morbid influence has not been chemically shown to perfect satisfaction. In fact, in many diseases, it would appear highly probable that there is a defect of elimination of certain principles, perhaps inexplicable at present, the result either of an introduction directly from without, or of the modified actions of the economy itself. The constitutional origin of local diseases has been long since recognized, but modern medicine suggests that the key to the right treatment of these diseases is the recognition of the elimi-

nating effort which the system is making ; and this elimination, it is clear, is not to be advanced by an indiscriminate application of drugs which have the reputation—and often only the reputation—of addressing themselves to particular organs, but in the accurate study of their real action upon the fluids which are the vehicles of elimination.

In other words—as in agricultural chemistry, when we find that the products of a field no longer answer expectations, that the ears which once stored the barns of the farmer now only yield empty husks, we do not indiscriminately apply a manure, but seek rather to discover the principle abstracted from the soil, and endeavor artificially to supply that ; so in medicine, as modern science indicates, we must proceed if we hope for successful results. The formula, then, the theory of many diseases, as viewed by modern medicine, being represented by the one idea of elimination of morbid influences, the medication must necessarily consist in assistance offered for this purpose. That the methods of this medication are to be found in discoveries made and to be made by chemical investigation, can hardly be doubted by any fair-minded observer. The minute investigation to which I have alluded, availing itself both of chemical research and microscopical examination, and yet not overlooking the existence of conditions, which escaping these, can only be predicated from their effects, must necessarily be the path to correct results, if correct results are attainable.

When we learn that *scrofula* consists in the deposition in the tissues, of an unorganized product, without connection with parts in its vicinity, and acting only secondarily by irritation ; while, on the other hand, *cancer* is a product endowed with an actual increase of vitality, appropriating to itself the nourishment of the rest of the body, and draining like a parasite the parent trunk that supports it, while at the same time it remains itself, at this primary stage, without advancing towards any higher condition ; when we learn these facts, we cannot hesitate to believe that we have a more satisfactory knowledge of the nature of these products, than if we merely considered them in their gross appearances. We may not claim to have made any advance towards their better management or control ; but assuredly, if we can ever hope to attain this desired result, it must be by means furnished by this and similar knowledge. It is evident that we are in the right path.

Modern medicine, then, may be said to address itself not so much to the diagnosis of disease, as to the elucidation of its nature as indicating the application of remedies. The manipulations, which are peculiar to these investigations, are apart from the general routine of the daily practitioner. It is not necessary that he should be a good chemist or a good microscopist ; for results of this kind, he must depend upon others. He needs only to be perfect in all the arts by which the diagnosis of disease may be made out ; he must decide upon its actual pre-

sence by broad and well-marked characters which he has learned to recognize ; but his treatment may be influenced by what he can learn from those more especially applying themselves to these researches. And in his turn he may temper their enthusiasm, which often leads the most cautious to theorize too rapidly, tempted, from the very distance of the result, to grasp even a factitious reward for their labors. The necessity that future investigation, the direction of which I have pointed out, should not be left entirely in the hands of mere chemists, unassisted by the true medical practitioner, may be seen in the many errors into which a distinguished chemist has fallen, when he attempts to theorize upon the more complicated processes of disease. The formation of a theory of disease is too vast an undertaking, and requires an analysis of too many conditions, to be left in the hands of an investigator of only a single portion of the subject. Knowledge must be brought from all quarters, and from none must be scorned ; and to point out from what quarter of the heavens the next beam of light may appear, has been the object of this discourse.

In conclusion, I may be permitted to allude to the cause that we, as a society, have for congratulation in the successful result of what last year was a commencing experiment. The principal object of our organization is to stand in the place of the Parent Society to the individual members of the

District, whose wants and necessities can evidently be better understood, and the required legislation better applied, by those immediately interested. The chief end of this legislation is the management of a medical police, having for its object the control of the conduct of individual members. The exercise of this right, which is almost the only active step we can take, at once opens the question of how much an organization like ours is conducive to the advantage of the public. A superficial observer might ask why, since in the kindred profession, the law, no disadvantage has been felt from the abrogation of the Bar Rules, and leaving the mal-practising attorney to the keen eye of the public, it would not be as well to leave the rank and consideration of the practitioner of medicine to the enlightened self-interest of his employers, and by so doing, avoid those jealousies which are apt to be excited by the league of numbers, even for a harmless purpose, and which sometimes proceed even to sympathy with the offender, who is receiving a punishment which is conceded to be just.

This objection is specious, and if our organization had for one of its objects any direct advantage of our own, as the establishing of belief in any particular medical dogmas as a standard of membership, or the fixing of any sum which we would demand for our services, ostracising those who might be willing to serve the public for less, the objection would carry considerable weight, and our continuance would be

a question of interest solely, to be decided according as we had the power to maintain our requisitions, whether we were of so much importance to the public that they would yield to our demands, or would supply themselves elsewhere. The same question would arise as in a strike of a class of operatives, and would be settled in exactly the same way, according as the supply of, or demand for our services should prove to be the greater.

But our organization contemplates no such advantage for ourselves. We are leagued together, but this league does not, strange as it may sound, so much confer advantage upon ourselves, as it prevents us from taking advantage of the public. The skill, talents, honesty, &c., of an attorney, can be readily estimated by those who are desirous of employing him, and the estimate is generally correct, because it is made upon a subject that can be readily understood by those interested. But with our profession there is this difference. The public may perhaps, in the main, be right in their judgment of the skill of a medical practitioner, and we do not attempt to interfere in the formation of their opinion on this point; but we do say that the public are peculiarly prone to deception upon the point of his honesty, which is of equal importance to them as his skill. No one can doubt that a well-educated medical man might actually make more money, and create for himself a greater reputation, and perhaps be of more consideration among those who are accustomed, from

their talents and education, to be regarded as in some measure fixing social position, if he chose to divest himself of many of the restraints which our Society imposes upon him. Our Society says to the public, we will endeavor to furnish you with a medical practitioner, who, if you will employ him, will have for his first object your restoration to health. He will not practise upon your credulity, by exaggerating your actual condition; he will not endeavor to impose upon you on subjects you cannot understand, by claiming superior sagacity, or the possession of methods or means peculiar to himself, increasing his demands upon you from this pretended circumstance. On the contrary, if, which is rarer than may be supposed, he shall make any discovery, he will not deprive suffering humanity of it for his own advantage, but will publish it, that its value may be tested by an experience larger than any individual may hope to have. In one word, he will endeavor to conduct himself as an honest man; honesty being considered as a strict avoidance of all those tricks and practices which are calculated to deceive those who are ignorant, as the public necessarily must be. If we chose, we might practise upon the credulity of the public, and all the better for our education. The ignorant quack is not the successful one. The public are the prey of the educated knave, and against him we would enter our protest. In medicine, the public are prone to deception, and it is not to be wondered at that the in-

valid or his friends, in their longing for health—a treasure, perhaps, gone forever—should be led to disregard indications which would render them cautious of employing an individual in any other situation of trust or responsibility. We, then, knowing the ease with which deception may be practised, voluntarily relinquish our power to deceive, and bind ourselves to be honest. The advantage is on the side of the public, and not on ours. And this appears to me the chief, if not the only argument for an organization like ours, prescribing rules of conduct for its members, and requiring entrance into its ranks; and, moreover, this argument appears perfectly conclusive.

It is no proof against the doctrine I have advanced, that we may not always succeed, and that dishonest men may be able to shelter themselves in our ranks, and defy our attempts to expel them. We may be unable to do good, but we certainly can do no evil; and even in cases of failure to execute our rules, we cannot doubt that the knowledge that the vigilance of members is aroused, will have a wholesome influence, and the real view taken of certain practices by the upright members will be shown to the public.

Another object of our organization is the monthly meetings for medical improvement. These have been faithfully maintained during the past year. If the attending numbers have been small in comparison with the whole number of the Society, the reason should be sought, not in any lack of interest in

scientific discussion and information, but rather in the fact that the ground has been already occupied by two other societies having similar objects, and that scientific subjects are better managed and discussed by individuals brought somewhat closer than is possible in a society as large as ours. The zeal is not wanting, but has been employed in another direction.

The object of the Society has been attained in the union of respectable practitioners in the maintenance of the medical character free from all reproach of dishonesty or charlatanism, and for this purpose there is no doubt that it will be continued successfully.

In bringing to a close an address commemorative of an anniversary, it is natural to review our ranks, and to pause a moment over the vacant places of those who have gone to receive the reward of their labors. But while we mourn with those who mourn, and maintain for the departed the faithful and fraternal remembrance which we trust will be the meed of us all, let us not forget to offer up our thanks to the Power who still preserves to us, as bright examples, those fathers of medicine, whom, through so long a series of years, we have delighted to honor. Under their instruction the greater part of us have sat; to their counsels, their wisdom, their prudence, their right-mindedness, we owe whatever of these virtues we may claim.

By their examples they have taught us, that while a steady front is to be maintained against hasty innovation, the part of true catholic wisdom lies in a candid and fair examination of all views, and in keeping the mind free from that blind distrust which scorns the consideration of a proposition merely because it is new. By them, every improvement has been welcomed, and every right endeavor appreciated. And we now see, in the mind's youth triumphing over the body's age, the reward of a loyal reception of Truth. May they long be continued to us as guides, and may their remembrance enable us to transmit to those who shall succeed us, the inheritance we have been so fortunate as to receive directly from them.

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